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ABSTRACT

Inter-class ability grouping, i.e., assigning students to classes according to ability, is a controversial topic among parents, teachers, school administrators, and educational researchers. To determine the effects of inter-class ability grouping, a meta-analytic methodology was applied to 85 studies carried out in elementary and secondary schools. Screening of studies yielded 40 studies at the elementary school level and 45 studies at the secondary school level which were suitable for analysis. Two separate analyses were performed. The first analysis covered achievement results, which were reported in 78 studies. The second analysis covered self-esteem results, which were reported in 24 studies. The results revealed that, while the average achievement effect size was only 0.15, certain types of studies produced stronger results than did other types of studies. The feature that proved most important in determining strength of results was the type of program examined in the study: honors programs designed especially for talented students had clear positive effects when compared to XYZ and remedial programs. Results on self-esteem revealed that the average effect of grouping on self-esteem scores of students was near zero. These findings suggest that homogeneous grouping is often beneficial for talented students, may improve achievement and self-esteem of slow learners, and has little effect on the achievement and self-esteem of average students. Graphs are included. (NRB)

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Effects of Inter-Class Ability Grouping on Achievement and Self-Esteem

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Inter-class ability grouping is the practice of assigning students to classes, tracks, or streams according to ability. Although American schools have used ability grouping for many years, it is still a controversial topic. Some parents, teachers, and school administrators believe that it has positive effects on student academic performance and self esteem, whereas others believe that it is an undemocratic practice that has damaging effects on children.

Educational researchers have tried to resolve the controversy about grouping by carrying out studies of its effects, and reviewers have often tried to find a pattern in the results of their studies. The central message from most of the reviews, however, is that nothing has been established with certainty. Reviewers in the 1920s complained about the difficulty of reaching firm conclusions, and reviewers in the 1980s are making the same complaint.

In 1982 James Kulik and I published a meta-analysis of findings on grouping in secondary schools (C. Kulik & Kulik, 1982). By applying meta-analytic methods to the collected research findings, we hoped to be able to reach the definite conclusions that had eluded other reviewers. Our meta-analysis covered results from 52 separate studies in grade 6 through 12. The analysis showed that grouping had, on the average, small positive effects on student learning, and it had no consistent effects on student self-esteem. We also found that the size of achievement effects different in different types of grouping programs. Programs in which high ability students received enriched instruction in honors classes produced especially clear effects; studies of multitrack programs designed for students at all ability levels produced near-zero effects.

Our 1982 meta-analysis on grouping has been criticized on several grounds. In an Educational Researcher article, Slavin (1984) argued that our analysis included too many studies with inadequate experimental controls. In Slavin's view, treatment effects in some of the studies may have been confounded with other effects. In an article in the American Educational Research Journal, Marsh (1984) argued that our analysis of self-esteem findings gave too little attention to interaction effects. It did not directly investigate the possibility that self-esteem effects were different for children at different ability levels.

The present study was designed to correct these deficiencies in our earlier analysis and to extend the analysis to cover a wider range of studies. The study used an up-to-date meta-analytic methodology, and applied it to studies carried out in both elementary and secondary schools.

METHOD

The meta-analytic approach used in this review was similar to that described by Glass, McGaw, and Smith (1981). Their approach requires a reviewer (a) to locate studies of an issue through objective and replicable searches; (b) to code the studies for salient features; (c) to describe study outcomes on a common scale; and (d) to use statistical methods to find relationships between study features and study outcomes.

The studies considered for use in this meta-analysis came from three major sources. One large group of studies came from the references in our earlier meta-analytic review of grouping at the secondary school level. A second group of studies was located by a computer search of three data bases. And a third group of studies was retrieved by branching from bibliographies in the documents located through reviews and computer searches.

Careful screening of the studies for methodological adequacy and relevance to the topic of inter-class grouping yielded 85 studies that were suitable for analysis. Forty of the 85 studies were at the elementary school level, and 45 were at the secondary school level. The studies differed from one another in a number of important features. We identified 13 variables that could be used to describe these features (Table 1). The 13 variables could be grouped into 4 major categories: 4 of these variables covered program features; 4 covered study methodology; 3 covered study settings; and 2 covered publication history. Along with study features, we coded outcomes of each study as effect sizes, using formulas developed by Glass and his colleagues.

RESULTS

We carried out two separate analyses of the resulting data. The first analysis covered achievement results, which were reported in 78 studies. The second analysis covered self-esteem results, which were reported in 24 studies.

Achievement Effects

The average achievement effect size was 0.15. That is, the average effect of homogeneous grouping in the 78 studies was to raise examination scores by 0.15 standard deviations. This is a small effect, equivalent to an increase of about 1.5 months on a grade equivalent scale, or an increase from the 50th to the 56th percentile on a percentile scale. Not too much importance should be attached to this average effect, however. Further analyses showed that certain types of studies produced stronger results than did other types of studies. It is possible, therefore, to be much more specific about grouping effects.

The feature that proved to be most important in determining strength of results was the type of program examined in a study. The programs studied were of three different types: XYZ programs, honors programs, and remedial programs. In XYZ programs, students representing a full range of ability are assigned to homogeneous classes on the basis of ability. This type of grouping is called XYZ grouping because classes at three different levels of aptitude are usually defined. In honors programs, talented students are separated from other students for enriched instruction in special homogeneous classes. In remedial programs, slow learners are separated from others for remedial work. About two thirds of the studies in our pool examined XYZ grouping; most of the remaining studies examined honors programs; and only a handful of studies examined remedial grouping.

Figure 1 presents the overall findings on achievement for each type of program. Separate bars give results for honors, XYZ, and remedial programs. The height of the bars indicate the average effect sizes.

The figure shows, first of all, that grouping programs designed especially for talented students have clear positive effects. The average effect in the 25 studies of such programs was to raise student examination scores by one third of a standard deviation. This is a small to moderate effect. It is equivalent in the elementary school years to an increase of about three months on a grade equivalent scale.

The three bars in the middle of the figure give results for XYZ grouping. The bars show that, in general, effects of XYZ grouping are less impressive than are results of honors programs. XYZ programs raise the scores of students assigned to the high ability classes by 0.12 standard deviations, whereas the increase in scores for students in the middle groups is only 0.04 standard deviations and it is virtually zero for students in the low-ability groups.

The last bar in the figure gives results for remedial programs. The average effect in four such programs was to raise achievement scores of slow learners by 0.14 standard deviations. Because of the small number of studies available on this type of grouping program, no reliable conclusions can be drawn about their effectiveness at this time.

Further analysis of study features that might influence effect sizes yielded few definite results. Only relationships of borderline significance were found, after the effects of type of program were taken into account. First, there was a tendency for effects reported in early studies to be somewhat stronger than effects in studies from

more recent years. A second feature that tended to be related to effect size was the source of the study. Effects reported in journal articles and in ERIC documents tended to be stronger than effects reported in dissertations.

Self-esteem Effects

The average effect of grouping on self-esteem scores of students was near zero. That is, the average study reported that students from grouped and ungrouped classes had virtually identical self-esteem scores. This average result should not be given too much weight, however, because we also found evidence that self-esteem effects differed as a function of program type.

Figure 2 presents the overall self-esteem findings for honors, XYZ, and remedial programs. The figure shows, first of all, that the 6 grouping programs designed especially for talented students had a trivial effect on their self-esteem. The 15 XYZ programs also had a very small overall effect, but there was a tendency for effects to be positive on the low-ability groups in XYZ programs and negative on high and middle ability groups. Finally, the 3 studies of remedial programs provided additional evidence that instruction in homogeneous groups has positive effects on the self-esteem of slow learners. No study feature other than program type was significantly related to the effect of grouping on student self-esteem. The failure to find study features that related to size of self-esteem effects, however, could be due to the small number of studies available on this topic.

CONCLUSION

This meta-analysis showed that school programs providing special treatment for talented students usually produce good results. The talented students who are in these programs almost invariably gain academically from them, and they do not become smug or self-satisfied as a result of their participation. If anything, talented students may become slightly more modest about their abilities when they are taught in homogeneous groups.

This meta-analysis provided little support for the common belief that grouping programs have negative effects on slower learners. On the contrary, we found that homogeneous grouping programs often helped to improve the self-esteem of slow learners, and these programs may have also had small positive effects on their achievement. The number of studies of remedial programs for slow learners, however, was too small for us to draw firm conclusions.

Homogeneous grouping seemed to have little effect on the achievement and self-esteem of students at the middle

level of ability. This finding was not unexpected. Instruction in homogeneous classes for middle ability students is probably fairly similar to instruction in heterogeneous classes. It also appeared to us that XYZ program effects were more moderate than were effects in programs for special target groups. This findings is perhaps explained by the greater degree of curricular adjustment in programs targeted for special groups.

One disappointment in this meta-analysis was our failure to find strong relationships between features of studies and their outcomes. Our analysis did not identify settings in which programs of homogeneous instruction were more or less successful. Nor did it throw light on experimental design features that help investigators get clear results. Although disappointing, this result was not surprising. On the basis of a number of meta-analyses carried out by himself, his colleagues, and his students, Glass has concluded that study features seldom explain much variation in study outcomes in the social sciences. Our own meta-analytic results support Glass's conclusions.

References

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Marsh, H. W. (1984). Self-concept, social comparison, and ability grouping: A reply to Kulik and Kulik. American Educational Research Journal, 21, 799-806.

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TABLE 1

CATEGORIES USED TO DESCRIBE STUDIES

Program Features

- Type of program: honors, XYZ, remedial
- Grouping on specific ability: yes or no
- Curricular adjustment: yes or no
- Subject matter: single vs. multiple course

Methodological Features

- Random vs. nonrandom assignment
- Control for instructor effects
- Control for test-author bias
- Control for bias in test scoring

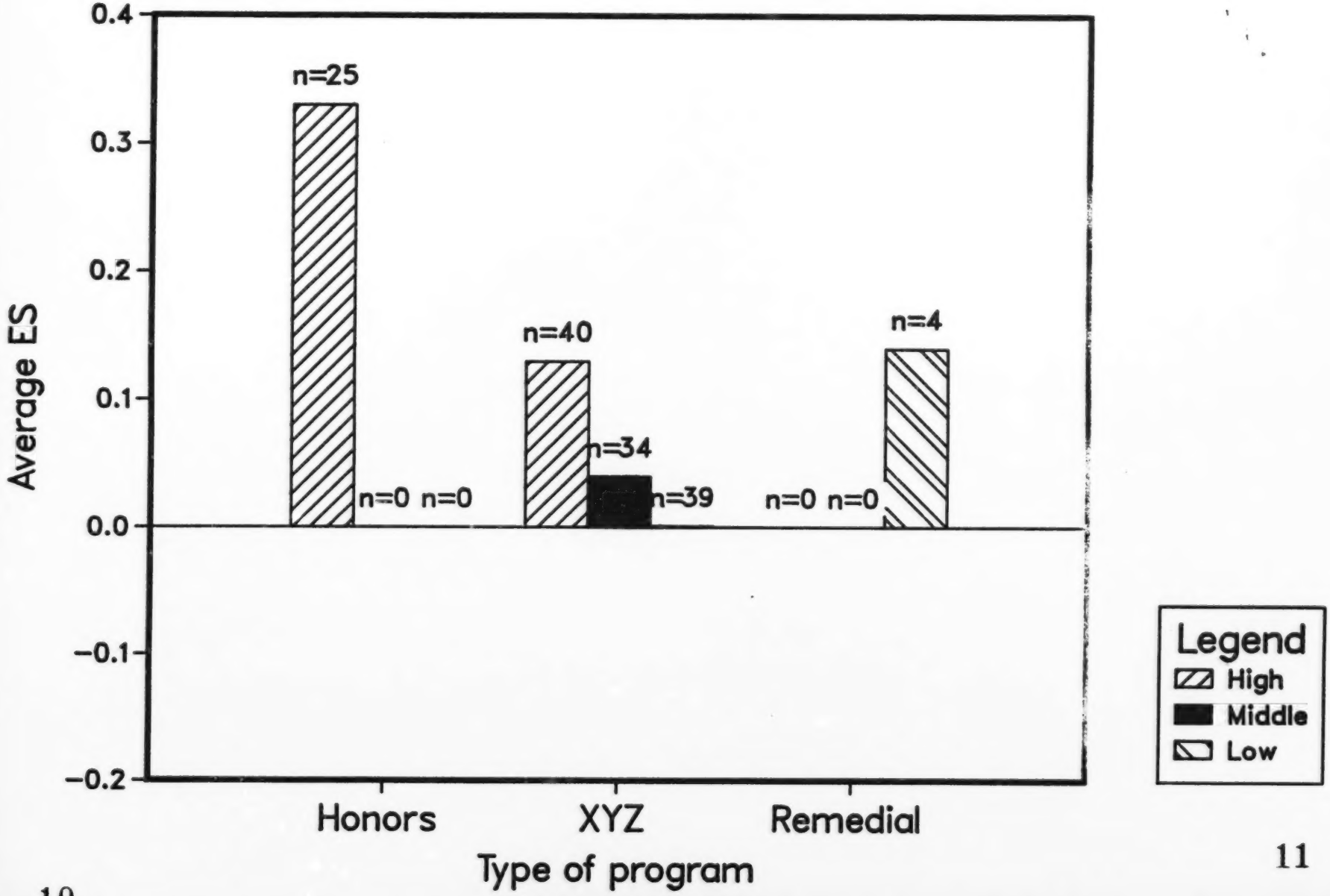
Setting Features

- Grade level
- Duration of treatment
- Origin of study: USA vs. foreign

Publication Features

- Document type
- Year of publication

Effects of Grouping on Achievement



Effects of Grouping on Self–esteem